

ON THE OCCURRENCE OF FLESH-SPICULES IN
SPONGES.

BY R. VON LENDENFELD, PH.D.

Siliceous spicules occur in Sponges either in the ground-substance or in the horny fibres or in both places in the same sponge. As I have pointed out in previous papers, such Flesh-spicules may aggregate to produce hard siliceous skeletons if no other skeleton was present at the time of their formation, but they remain loose and small if such a skeleton was present at that time. The cases where Flesh-spicules occur in the ground substance, and other differently shaped and closely packed monactinellid siliceous bodies form a fibrous reticulate skeleton, are numerous. These Flesh-spicules are rare in other Sponges than such, which possess a fibrous reticulate skeleton composed of closely packed siliceous spicules.

Only in a few Gumminæ star-shaped or globular siliceous bodies were known to occur, independantly of a silico-fibrous skeleton. These are, however, of a very different shape from those which are found in the Desmacidonidæ. The latter never were observed without a silico-fibred skeleton.

I however, discovered one exception to this in a Sponge from Port Phillip, as formerly no such exception was known. O. Schmidt, Vosmaer, and others were perfectly right to combine all these Sponges with monactinelled spicules in bundles, and Flesh-spicules of very varying shape to one Family, the Desmacidonidæ. The Desmacidonidæ are Sponges with fibres composed of monactinellid spicules as the Chalinidæ and others, which are distinguished from these latter Families by the possession of Flesh spicules.

On the ground of this exception mentioned above, where I found a *Hircinia* containing Flesh-spicules, I based the Hypothesis that such Flesh-spicules are of no great systematic value and may occur in any Family of Sponges.

The extraordinary rich material which five months dredging in Port Jackson has brought to light, together with the numerous and well-preserved Sponges of all parts of the Australian Coast in the Museum of the Hon. William Macleay, and in the Australian Museum, which I have had opportunity to examine has rendered fresh proofs to this hypothesis, which I wish to draw attention to.

I have found an *Aplysillidæ* with numerous anchors in the ground substance, and a representative of the *Spongidæ*, a Sponge which would otherwise be undoubtedly referred to *Cacospongia* containing numerous truncate spicules in the ground substance.

I therefore consider myself to be justified in arranging the Families without regard to the existence of Flesh-spicules beside the fibres in the ground substance, and so divide all Families in which Flesh-spicules are sometimes met with into Sub-families with and without siliceous bodies in the ground substance.

As these discoveries tend greatly to prove the correctness of my former statements, which may have appeared perhaps to stand on too weak a foundation of facts, it may be worth while to publish them now as it will be some time before I shall be able to lay that part of my Monograph of the Australian Sponges before the Linnean Society of New South Wales, which dwells on the Families of the *Ceraospongiæ*.

NOTE ON THE SLIMY COATINGS OF CERTAIN
BOLTENIAS IN PORT JACKSON.

BY R. VON LENDENFELD, PH.D.

A stalked solitary Ascidian, somewhat like *Boltenia australis*, which grows in depths between 6 and 10 fathoms in Port Jackson is characterised by its slimy surface. The pale brick-red colour of the outer surface of the slimy body of the cellulose mantle is similar to that of the stalk which does not appear slimy.

Expecting to find gland cells in the cellulose mantle I made sections which, however showed, that this slimy coating is nothing else than the ova of the Ascidian which cover the outer surface of it with a layer about 2 mm. in thickness.

These ova are surrounded by follicula, which consist of prismatic cells about three times as high as broad. The follicle-wall, consisting of a single layer of these cells, is as thick as the diameter of the spherical transparent ovum. As in other Ascidians these follicle-cells are filled with highly refractive granules, and there seems to be little doubt that these granules are nothing else than a mucous substance which is pressed forth when the Ascidian is touched, and then appears as that slippery slime which covers the parts of the surface which are coated with ova only, and is not met with on the stalk where the ova are absent. Out of the breeding season these Ascidians are ordinary, not slimy *Boltenias*.

NOTES ON A COLLECTION OF ECHINODERMATA
FROM AUSTRALIA.

BY F. JEFFREY BELL, M.A., Sec. R.M.S.

Professor of Comparative Anatomy in King's College, London.

One of the most solid and gratifying "results" of the Great International Fisheries Exhibition held in London in 1883, were the lessons zoologists learnt in the "New South Wales Court." Speaking here only of the department in which I take the greatest interest I have to express my thanks to the authorities in Sydney for sending over to this country one who displayed so generous a disposition as Mr. Ramsay; to this gentleman's kindness I owe the opportunity of going through an excellent collection of Australian Echinodermata; but I greatly regret that the rarer species of which he had only single specimens could not be left in my hands a little longer.

I have thought there might be some slight return on my part if I were to offer to the Linnean Society of New South Wales a systematic list of the species which I was able to determine, as a slight and preliminary contribution to a knowledge of the fauna of Australian Seas, and I only regret that prior engagements compel me to refrain from the discussion here of the kind of problems which had already been suggested to me by a study of the very magnificent collections made by Dr. Copping of the H.M.S. Alert. To the report on that collection, now shortly to be published* I must refer the student for details, descriptions of new species, and bibliographical references

* As a Catalogue of the British Museum, where the Report on the Echinodermata will occupy pp. 117-177.

After the list of the species of each class, I have added a few notes on those that have seemed to me to be of special interest or importance.

Here one general remark need alone be made ; the collections before me show that within a short distance of the meeting place of the Linnean Society, there is a bay teeming with species and individuals. The exact knowledge of the fauna of a given region—in other words a correct and full enumeration of the species—is a matter of considerable importance, but one cannot insist too often, too unweariedly, and even too fanatically on the great, though not always clearly perceived, truth that we are not a little like those who beat the air when we add species to species and genus to genus, and yet know of these nothing more than is sufficient to justify our framing our diagnoses. The knowledge of the variations during growth, of the variations due to slight alterations in the surroundings of the proportional frequency of individuals, and of the relation of species to one another will afford a firmer base for systematic work than synonymic catalogues or nominal check-lists.

The student who lives at Port Jackson might well take this truth to heart, for he lives in a region in which the number of individuals of certain species is sufficient for all the purposes just indicated.

DIVISION. PELMATOZOA.

CLASS. CENIOIDEA.

1. *Antedon milberti*.
Port Denison, Port Molle.
2. *Antedon marionema*.
Port Stephens.
3. *Antedon spicata*. (P. H. Carpenter. Notes Leyden Museum, III., p. 190.
Ugi.
4. *Antedon* sp. Allied to but not the same as *A. spicata*.
Ugi.

*5. *Antedon pumila*.
Nelson's Bay, Port Stephens.

6. *Actinometra solaris*.

*7. *Actinometra intermedia*.
Port Molle.

8. *Actinometra jukesi*. (P. H. Carpenter, Proc. Royal Soc., 1879, p. 390.)
Port Molle.

Together with several species of *Antedon*, hitherto undescribed, but here unfortunately represented by single, not always perfect, specimens.

DIVISION. ECHINOZOA.

CLASS. ASTEROIDEA.

1. *Asterias calamaria*.
Tasmania.
2. *Echinaster purpurea*.
Port Molle.
3. *Linckia marmorata* (?)
Port Molle ; (of Alert report.)
4. *Stellaster incei*.
Port Molle.
5. *Pentagonaster australis*.
Tasmania.
6. *Anthenea tuberculosa*.
Port Jackson. *Vide infra*.
7. *Asterina Gunnii*.
Tasmania.

* 5 and 7 were discovered by the Alert and will be described in the report on that collection made by that vessel.

8. *Asterina calcar.*
Port Jackson.
9. *Asteropsis vermicina.*
Port Jackson.
10. *Astropecten polyacanthus* (Young)
Port Jackson.
11. *Astropectinid?* Sp. nov.
Port Molle.
12. *Actaster insignis.* (Sladen, J. L. S. XVI., p. 200).
Port Jackson.

Anthenea tuberculosa: These are very fine specimens, and a comparison of their characters with those of the "type" teaches us that a comprehensive revision of this genus will have to be based on large series of specimens of very various sizes; the genus is at present rather poorly represented in European Museums.

CLASS. OPHIUROIDEA.

1. *Pectinura stellata.*
Port Denison. *Vide infra.*
2. *Pectinura gorgonia.*
Sydney: Nelson's Bay, Port Stephens.
3. *Pectinura marmoratu.*
(?) "Queensland."
4. *Ophioglossus imbricatus.*
Port Denison.
5. *Ophioglypha multispira.*
Port Jackson.
6. *Ophiactis resiliens.*
Port Jackson: Nelson's Bay.